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MAILED 02 JUN 1999

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I also certify that the attached copy of the request for grant of a Patent (Form 1/77) bears an amendment, effected by this office, following a request by the applicant and agreed to by the Comptroller-General.

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P. Mahoney

Dated

04 JUN 1999

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The Patent Office

Cardiff Road
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1. Your reference

JG-2371

2. Patent application number

(The Patent Office will fill in this part)

19 FEB 1999

9903913.3

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Web Dynamics Ltd
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99 Church Street
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United Kingdom

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

United Kingdom

73695491001

4. Title of the invention

EMBOSS PATTERN INTERACTION IN THERMAL BONDING

form 5/77 7/41

5. Name of your agent (if you have one)

Graham Jones & Company

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

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EC4A 1AG

Patents ADP number (if you know it)

2097001

4014502006

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number
(if you know it)

Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

YES

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicant is a corporate body.
- See note (d))

Patents Form 1/77

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Continuation sheets of this form

Description

3

Claim(s)

Abstract

Drawing(s)

1

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

2

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature

Date

19-2-99

12. Name and daytime telephone number of person to contact in the United Kingdom

Mr. G.H. Jones. 0181-858-4039

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EMBOSS PATTERN INTERACTION IN THERMAL BONDING

This invention relates to emboss pattern interaction in thermal bonding.

As disclosed in our United Kingdom patent application Nos. 9817399.0 and 9819131.5, the interaction between the emboss pattern of a non-woven fabric and the bonding pattern imposed during lamination can affect the bonding of the fabric to a second component, for example a film layer.

In accordance with the present invention, it is disclosed that the interaction between the emboss pattern of the fabric and the bonding pattern of the lamination process can have a significant effect, not only on the bonding between the fabric and film components of the laminate, but upon the properties of the film itself. This may be especially so when the laminate is a simple two component structure comprising a spun-bonded fabric over approximately 50g/m^2 and a thin film, for example $<35\mu\text{m}$.

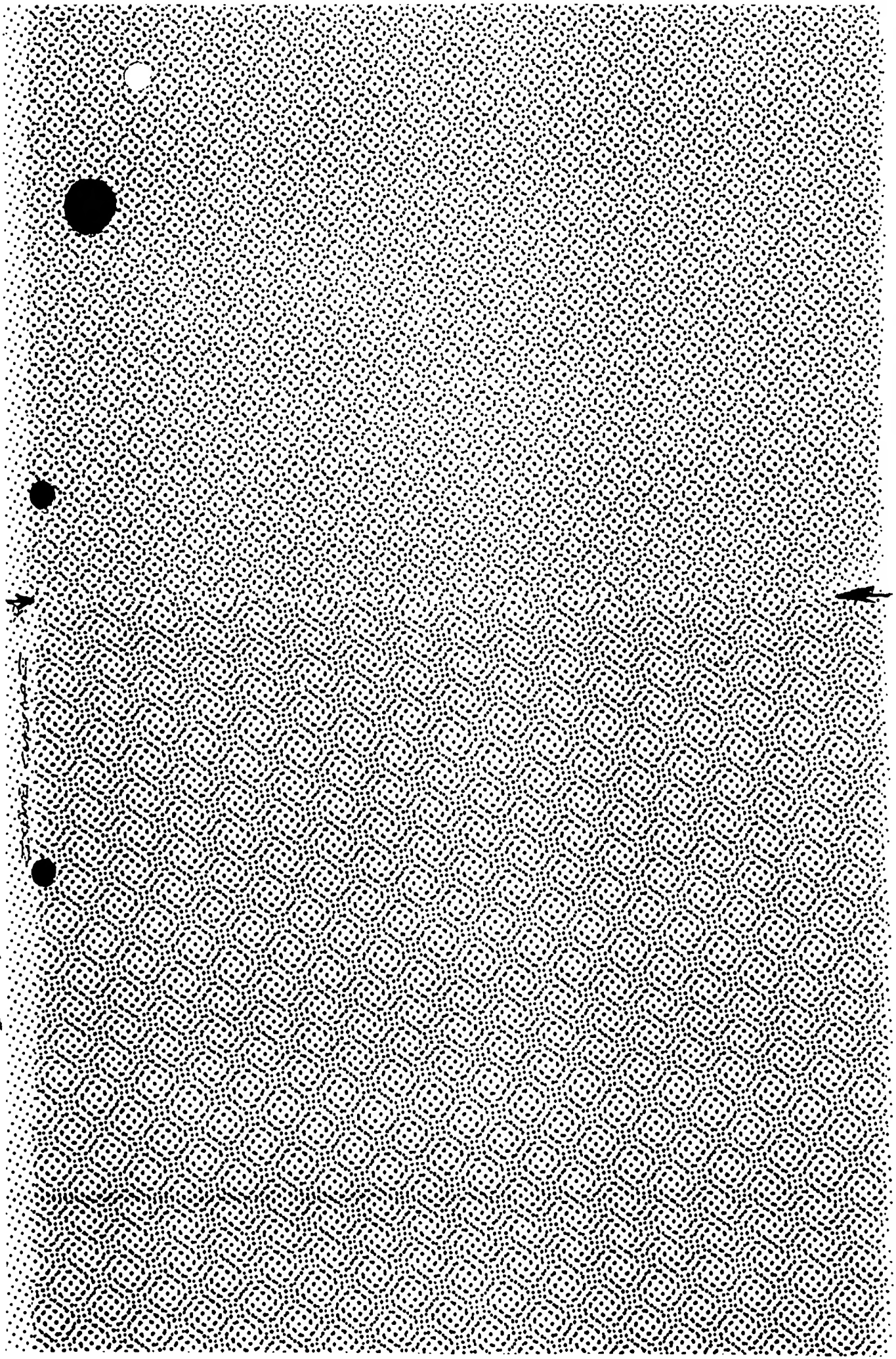
With lightweight spun-bonded fabrics, for example 35g/m^2 since there is little difference between the thickness of the fabric overall and the thickness at its emboss points, then, during lamination, pressure exerted at each lamination emboss point is approximately equal over the surface of the fabric, and the film can be laminated without damaging it. Similarly, in three component structures, in which the film is sandwiched between two fabric layers, the film is less prone to damage by emboss

points of the lamination process. This may be the case even when one of the fabric layers is very lightweight, for example 17g/m^2 .

However, with two component structures in which the fabric layer is $> 50\text{g/m}^2$, the bonding pattern interaction can affect the film during lamination. By way of example, if a low bond area emboss fabric pattern is used along with a 19% bond area diamond emboss pattern, as illustrated in Figure 2 of patent application No. 9819131.5, there are almost no emboss points of the two emboss patterns which are in phase. The pressure from the emboss points of the lamination roll is thus equally spread across all the emboss points of the lamination roll. This configuration is especially advantageous in achieving bonding of the fabric to the film without causing any damage to the film layer.

If the low bond area emboss pattern fabric mentioned in the above example is turned over so that the other surface of the fabric is brought into contact with the film layer, then the emboss pattern interaction following lamination is different. The comparison is illustrated in Figure 3 which is numbered to follow on from the drawings in the above mentioned two previous patent applications. The top half of Figure 3 shows the same emboss pattern as shown in the above mentioned Figure 2. The bottom half of Figure 3 shows the effect of turning the same fabric over. The pattern in the bottom half of Figure 3 has an

approximately square configuration of approximately nine points which are in juxtaposition. The other emboss points are out of phase with each other. In this configuration, the film layer is damaged during lamination so that it is perforated and no longer a barrier to liquids. This effect occurs even although none of the lamination process conditions, other than turning the fabric over, were changed.



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DAVID KELTIE ASSOCIATES.

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